
2006 Volunteer Salmon Watcher Program

**Lake Washington Watershed,
Puget Sound WRIA 8 Streams,
and Vashon Island**

May 2007



King County

Department of Natural Resources and Parks
Water and Land Resources Division

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King County Water and Land Resources Division, in cooperation with:
Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Forum
Bellevue Stream Team
Cities of Bothell, Kirkland, Redmond, Renton, Seattle, and Woodinville
Snohomish County Surface Water Management
Vashon-Maury Island Land Trust
With support from King Conservation District

Alternate formats are available upon request by contacting
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Summary

The purpose of the Salmon Watcher Program is to document the distribution of spawning adult salmon throughout the basin via an active public outreach and education program and subsequently consolidate all the information into a single resource (this report). These data can be used by policy makers and the public to improve how aquatic resources are managed, to protect salmon and trout species, and to enhance their habitat.

For the 2006 program, 144 volunteers surveyed 137 sites on 57 streams throughout the Lake Washington Watershed, other WRIA 8 streams in Central Puget Sound, and Vashon Island streams from September 1, 2006 to February 5, 2007. Because volunteers collect the data in this program, the agencies are able to obtain more information from far more locations than would otherwise be possible. However, data in this report should be used with the following factors in mind:

- (1) Volunteer expertise in locating and identifying fish species varied from very high to very low;
- (2) Coverage of streams by volunteers was by no means complete; therefore, fish distribution information is not complete;
- (3) Volunteers view stream sites for relatively brief periods of time during the spawning season;
- (4) Determination of survey sites was based on volunteer availability and site accessibility (and some survey locations change from year to year, even on the same creek);
- (5) Spawning fish can be difficult to see and therefore may have passed through reaches undetected; and
- (6) Volunteer data indicate only where minimum fish distributions extend to, but do not indicate reaches where fish are definitively absent (in other words, the data confirms fish presence, but does not confirm absence).

Volunteers observed the following species: sockeye, kokanee, coho, chinook, and chum salmon, as well as trout species. The following results were compiled from volunteer observations: (1) Coho had the widest distribution throughout the survey area—they were seen in 7 Lake Washington Watershed basins including WRIA 8 Puget Sound streams, they were observed on Vashon Island, and they were also reported in Longfellow Creek, which is a WRIA 9 stream leading to Puget Sound; (2) Sockeye were seen in the greatest numbers (11,093 enumerated); (3) Chinook were observed in 6 Lake Washington basins; (4) Kokanee observations were observed in 4 Lake Washington basins; and (5) chum were observed in 1 Vashon stream and 3 streams in WRIA 8 that drain to Puget Sound.

This report is published on the Internet and can be found using the hyperlinks on this web page: <http://dnr.metrokc.gov/wlr/waterres/salmon/reports.htm>.

Maps included in this report have been published on the Internet and can be found using the hyperlinks on this web page: <http://dnr.metrokc.gov/wlr/waterres/salmon/maps.htm>.

Acknowledgements

Many thanks to all the dedicated volunteers for spending many hours in what is often cold and wet weather to collect the information for this report—some for the tenth year in a row, and sometimes without ever seeing a single fish. Without the volunteers there would be no data, no maps, and no report. They help make a positive difference here in the Northwest, not only by reporting fish species, but by acting as the eyes and ears of the streams, reporting stream blockages as well as illegal and other suspect activities. They are the stewards of resources that make the Pacific Northwest so special. A *huge* Thank You to all our great volunteers!

We also want to acknowledge the various individuals from the cooperating jurisdictions. Every year these folks meet and plan the program, organize and stage the training sessions, and invest lots of time attending to the questions of the volunteers. Thanks (in no particular order) to Laurie Devereaux, Bob Spencer, Debra Crawford, Peter Holte, Andy Loch, Jennifer Kaufman, Jon Morrow, Gary Fink, Kollin Higgins, Kit Paulsen, Wendy Collins, and Karren Gratt.

Jennifer Vanderhoof is the program's technical lead and also writes these annual reports.

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Introduction

The Salmon Watcher Program is a volunteer program that originated in 1996 and whose purpose is to record observations of adult fall-spawning salmonids. Volunteers are recruited and trained to identify and watch for spawning salmon throughout Water Resource Inventory Area 8 (WRIA 8), which includes the Lake Washington Watershed and some streams leading to Puget Sound (Figure 1). Volunteers are also trained to watch on Vashon Island. Regional agencies who participated in the Salmon Watcher Program along with King County during the 2006 season include the Bellevue Stream Team, the cities of Bothell, Kirkland, Redmond, Renton, Seattle, and Woodinville, Snohomish County Surface Water Management, and the Vashon-Maury Island Land Trust.

The Salmon Watcher Program was initiated to expand on current efforts undertaken by resource agencies to document the distribution of spawning salmon in WRIA 8, including the Lake Washington Watershed. Basins that comprise the Lake Washington Watershed include Bear Creek, Cedar River, East Lake Washington, West Lake Sammamish, East Lake Sammamish, West Lake Sammamish, Issaquah Creek, and North Lake Washington (divided into the North Lake Washington tributaries and the Sammamish River tributaries). Other streams in WRIA 8 that were watched included Pipers Creek and Boeing Creek, both of which drain to Puget Sound. Vashon Island streams were observed as part of the Salmon Watcher Program for the fifth year in a row.

Salmon Watcher volunteers annually collect information on the presence of fall-spawning salmonids, including chinook, coho, sockeye, kokanee (resident form of sockeye), and chum salmon, as well as trout species. Data of this type become more important in the region as salmonids, such as Puget Sound chinook, are listed under the Endangered Species Act.

Because volunteers do this work, gathering this volume of data is accomplished with reduced agency resources, and the watersheds' residents can become involved and educated at the same time. Further, interactions with agency personnel foster positive relationships between the public and government agencies. With current budget and time constraints of agency personnel, much of the data collected in this effort would not be collected otherwise.

In addition to summaries of fish observed during the fall season, this 2006 report contains information and some statistics about the volunteers. It should be noted that this report summarizes data collected only by Salmon Watcher volunteers, and it is therefore in no way intended to be an exhaustive report of fish distribution in WRIA 8 or on Vashon. Other fish surveys are conducted annually by county, state, city, and federal agencies and non-profit organizations. For example, surveys have been conducted by volunteers or County staff to look specifically for kokanee and chinook; the results of these surveys are reported separately and are not included here.

Figure 1. Basins surveyed for the 2006 Salmon Watcher Program (see insert).

Methods

Volunteers were recruited during late summer and early fall of 2006 to observe fish in streams throughout the Lake Washington Watershed¹, other WRIA 8 streams, and streams on Vashon Island. The 141 volunteers who surveyed in the project area, plus 3 individuals who observed outside the project area, are listed in Table 1 (totals: 144 individuals, pairs, or groups totaling 170 people).

Table 1. Volunteer observers for the 2006 Salmon Watcher Program.

Ann Aagaard	Alyse & Dennis DeKraker	Ken Mackey
Staci Adman	Chuck Dolan	Hope Malcom Maltz
Walter & Ruth Albach	James Durham	Michelle & Jesse Marr
Imogene Allen	Bridget DuRuz	Ron Marshall
Mizue Amemiya	Erin Duvall	Jim McRoberts
Dennis Anderson	Mike Dziuk	Helen Meeker
Chad Armour	Willie Elliot & Carla Sparing	Joe Meeker
Bria Arnold	Gary & Bob Emerson	Jeff Mendenhall
Angelina Artero	Sara & Richard Farmer	Don Nataros
Russ Atkins	Jacob & Bob Farris	Katherine Negron
Kathleen Auld	Gail Fligstein	Diane Nelson
Frank Backus	Adrienne Fox	Brita Norvold
Neil Baldock	Vida & Kieran Fruebis	Matt Novack
Ed & Sheila Barnes	Dave Garland	Ken O'Neill
Richard Barrett	Louanne Choy & Alice Gilliam	Anette Olney
Cathleen Barry	Su & Heather Gow	Yoshiko Otonari
Judith Barry	Helgard Gray	Tammy Parise
Katie Beacom	Ron Green	Niket Patwardhan
John & Morgan Beaumier	Jill Harris	Clint Peebles
Terri Benson	Katie Hart	Betty Peltzer
Miles Berkey	Lynn Henderson	Lance Peterson
Shirley Biccum	Stephen Hensler	Sarah & Mark Phillips
Chris Black	Eri Igawa	Gary Pilawski
Marilyn & Tom Blue	Mark Jenkins	Nicole Potter
Mamie & Chuck Bolender	Nels Johnson	Jon Prentice
Aaron, Jennifer, & Ayla Bosworth	Jeremy Jones	Kelly Rau
Bob & Diane Brenno	Peg Jones	Krista Rave-Perkins
Brian Brenno	Barbara Jurgens	Grace Reamer
Linda & Lilas Brisk	Jennifer Kaufman	David L. Reitz
Janet Broadus	Pam Kelly	Larry Reymann
Robin Buerki	Gary Kelsberg	Marian Rice
Harriet Burkholder	Donna Klemka	Jennifer Roberts
Erin Bynum	Janusz Komorowski	Adrienne Ross
Michael Campos	Tommy Kraft	Kathleen Ryan
Janeene & Steven Chilcoat	Yvonne Kuperberg	Hiromi Sakata
Chow Man Chu	Debra Lehrberger	Ed Schein
Michael Scott Clark	Lynne Lew	Carrie & Drew Schwitters
Jill Cooper	Mark & Jodi Linstead	Rich Sheibley
Nancy Daar	Ginny Lodwig	Kathryn Sheldon
James & Edna Dam	Steve Long	Patty Shelton
Jake Dammrose	Barbara Lynum	Chris Shimada
Molly Deardorff	Robert & Susan Lyon	Maria Sorsby

¹ In this document, the Lake Washington Watershed means all waters draining through the Ballard Locks, and the subbasins of the Lake Washington Watershed are referred to as basins (e.g., Issaquah Creek Basin).

Table 1 continued. Volunteer observers for the 2006 Salmon Watcher Program.

Eric Soshea	Sachiko Ueda	Maggie & Brian Windus
Dan Spuckler	Mary Vincent	Barbara AW Wright
Mike Stults	Lisa Vorwerk	Linda Wylie
Noriko Tanaka	Steve Wangen	Aigyung Yang
Wing Tang	Irv Weisser	Wes & Paul Yasny
Kay Tokuda	Charles Wiley	
Laurie Tucker	Brendan Williams	

Volunteer Training

Agency staff held a total of six classroom training sessions in 2006. All volunteers were taught to identify adult spawning salmon species with a slide presentation, which was placed on King County's web site so volunteers could review it any time. During the training sessions, volunteers signed up for one or more sites to survey. They were given salmon identification materials, including color adult salmon identification cards and spawner timing charts. Volunteers were taught how to fill out and return data forms. They were also given phone numbers to call for situations that might arise in the field, including drainage issues, fish kills, and suspicion of pollutants.

Survey locations were prioritized by staff from each cooperating jurisdiction based on the need for information; however, sites were surveyed based on volunteer availability. Volunteers were assigned to stream locations near their homes or customary walking places whenever possible. Volunteers were instructed to stay on public property (bridges, parks, etc.) unless they gained permission from the landowners to enter private property or the survey location was on their own property. Figure 2 shows all the sites watched by volunteers during the 2006 fall spawning season.

Figure 2. Sites surveyed by Salmon Watcher volunteers in 2006 (see insert).

Data Collection

Surveys were conducted between September 1, 2006, and February 5, 2007, though most surveys began in September and were concluded in December (Table 2). Volunteers were asked to watch at their survey sites for at least 15 minutes, twice per week, and record any adult salmonids they observed. Actual survey frequency and duration varied greatly among volunteers.

Table 2. Number of surveys per month during 2006 Salmon Watcher season.

Month	Number of Surveys
September	574
October	1315
November	8900
December	410
January	18
February	3

Volunteers counted all live and dead adult salmonids they observed. If a volunteer surveyed the same site more than one time on the same day, the highest fish count was used; however, often more than one volunteer surveyed the same site on a single day and their individual observations were used. Volunteers were asked to report only once those dead fish observed on more than one occasion and to note subsequent observations of the same fish in their comments. Juvenile fish were noted if present. Unidentified fish were counted and described when possible.

Volunteers were asked if they could tell whether the fish they saw had an adipose fin. Volunteers were asked to note how many citizens they came into contact with during their streamside duties. They were also asked if they noticed anything at their site that needed to be reported and whether they reported it. All data were recorded onto field data forms (Appendix B), which were mailed to Salmon Watcher staff on a monthly basis.

Volunteers were asked to fill out a “First Fish ID” form. This form had several multiple-choice questions about various key characteristics for identifying fish. Volunteers were asked to fill one of these forms out the first time they saw a new species and to turn the forms in with their data. The purpose of this form is twofold: (1) to aid volunteers in identification by highlighting key characteristics, and (2) to aid Salmon Watcher staff in quality control.

Quality Assurance/Quality Control

Several means were used to assure that the data collected from volunteers were as accurate and consistent as possible during all phases of the program. Volunteers were provided with training by fish experts: data included in this report were collected either by returning volunteers or new volunteers who attended one of the training sessions for the 2006 season. Volunteers were provided laminated fish identification cards and a packet of training materials with fish identification information in it. Duplicate as well as additional fish identification materials were placed on the Internet. Contact persons were made available to volunteers to answer questions and verify species identification when necessary; volunteers were encouraged to call upon these individuals if they were unsure of species identification.

Staff receiving the data sheets screened them for anything requiring immediate attention such as an unusual fish sighting or potential water quality problems. If an unusual fish sighting was noticed on a data form, agency staff contacted the volunteer to further inquire about what characteristics were used to identify the fish. The First Fish ID forms were intended to provide another means by which fish identifications could be checked and verified.

Data were input into a SQL server database housed at King County. The database has been designed to catch anomalies in data entry, such as dates not in the season. The database also poses questions when it detects that a count of a certain species has never been as high at that site in that month in previous years. These and other checks were built into the database software to increase accuracy of input data. Following data entry, the figures were verified at least once by agency staff to ensure accuracy, as well as catch anything that might need addressing. The data reviewers are familiar with the basins and the fish runs typical for the basins.

Because of the limitations of usage of these data (Limitations of Volunteer Data, page 26) and despite quality control measures, the data are intended to be used only to make preliminary evaluations of the distribution of spawning salmonids in the Lake Washington Watershed and Vashon streams.

Results and Discussion

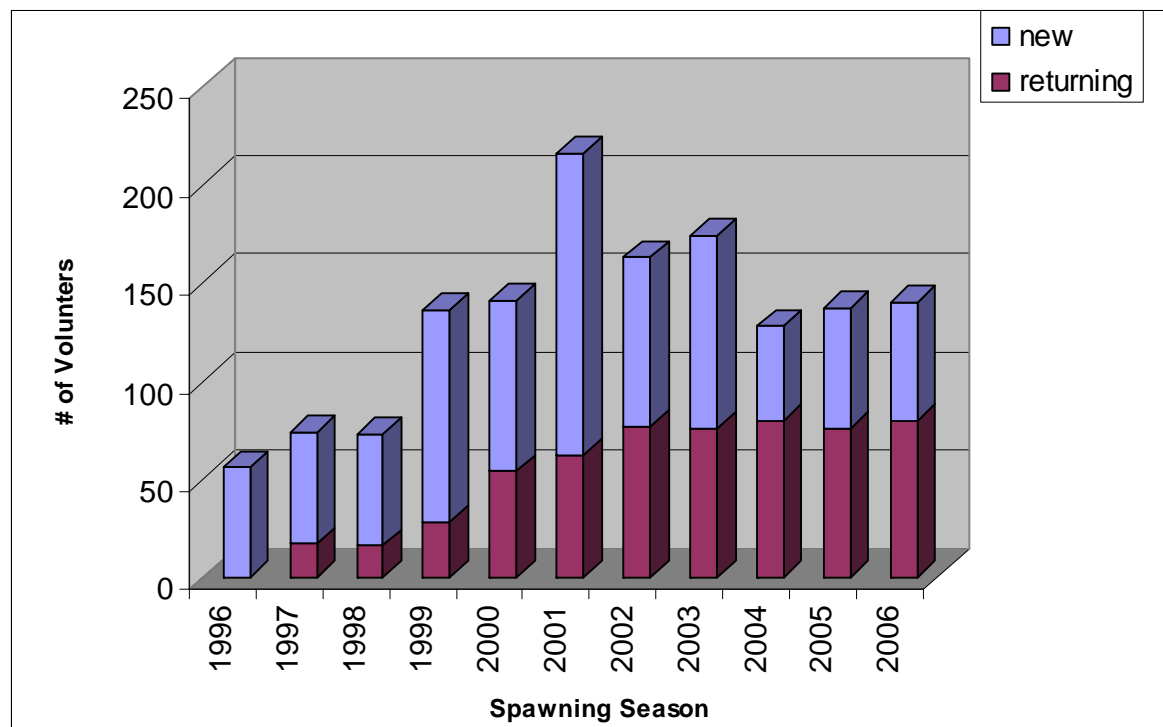
In 2006, a total of 137 sites on 57 streams were surveyed by 144 volunteers (Table 3).

Table 3. Numbers of streams, sites, and volunteers involved in the 2006 spawning season.

Area	# streams	# sites	# volunteers
Lake Washington Watershed	49	123	129
Other WRIA 8 Streams	3	3	4
Vashon Island	4	8	8
Other (outside program area)	1	3	3
Total	57	137	144

In 2006, 80 out of 141 volunteers (57 percent) watching in the official program area were returnees (Figure 3). The number of returning volunteers has remained consistent for several years. Of the 80 returnees, 2 pairs of volunteers have surveyed every year of the program. Additionally, 2 out of 3 volunteers at sites outside the funded program areas were returnees.

Figure 3. Total number of new and returning volunteers for each year of the Salmon Watcher Program².



² Note that volunteers in 2001 were from a larger geographic area. For further discussion, please see "Volunteer Activity" on page 26.

Basin Summary

In the 2006 spawning season, chinook were reported in the greatest numbers in Issaquah Creek and East Lake Washington basins (Table 4). The most kokanee by far were observed in West Lake Sammamish. Sockeye were reported in large numbers in Cedar River, Big Bear Creek, and Sammamish River Tributaries basins. Coho were seen in the most number of basins, but they were not seen in very high numbers. Table 5 shows how many fish were observed per 15-minutes watch time in each basin.

Table 4. Species enumeration within surveyed basins during the 2006 Salmon Watcher season.

Basin	Chinook	Chum	Coho	Kokanee	Sockeye	Trou t	Unid.	Basin Total
Big Bear Creek	52	-	40	1	3,007	7	86	3,193
Cedar River	66	-	129	1	4,381	-	70	4,647
East Lake Washington	117	-	26	-	555	-	67	765
West Lake Washington	-	-	-	-	-	-	-	-
East Lake Sammamish	-	-	-	-	-	-	-	-
West Lake Sammamish	-	-	-	185	-	-	2	187
Issaquah Creek	412	-	64	-	6	-	201	683
North Lake Washington Tribs.	10	-	9	-	110	-	16	145
Samm. River Tribs.	11	-	47	5	3,034	-	125	3,222
Vashon Island	-	12	16	-	-	-	-	28
Central Puget Sound - WRIA 8	-	246	5	-	-	-	13	264
Other Central Puget Sound*	-	-	2	-	-	-	2	4
Species Total	668	258	338	192	11,093	8	582	13,138

* Outside Program area.

Table 5. Species observed per 15 minutes of volunteer time watched in each basin during the 2006 Salmon Watcher season.

Basin	Chinook	Chum	Coho	Kokanee	Sockeye	Trou t	Unid.	Basin Total
Big Bear Creek	2	0	1	**	111	**	3	118
Cedar River	1	0	2	**	59	0	1	63
East Lake Washington	1	0	**	0	7	0	1	10
West Lake Sammamish	0	0	0	0	0	0	0	0
East Lake Sammamish	0	0	0	0	0	0	0	0
West Lake Sammamish	0	0	0	17	0	0	**	17
Issaquah Creek	38	0	6	0	1	0	19	64
North Lake Washington Tribs.	**	0	**	0	3	0	**	4
Samm. River Tribs.	**	0	2	**	111	0	5	118
Vashon Island	0	2	2	0	0	0	0	4
Central Puget Sound - WRIA 8	0	32	1	0	0	0	2	35
Other Central Puget Sound*	0	0	1	0	0	0	1	2
Species Total	43	34	15	17	292	0	31	433

* Outside Program area.

**Numbers are rounded; therefore, any counts less than 0.5 per hour would show up as zero.

Detailed results for each basin in the program are presented below in basin groupings. Data include stream name and state stream numbers as assigned in the “stream catalog” by Williams et al. (1975), corresponding stream sites (with Site ID and river mile), dates of surveys, number of surveys, number of surveyors, and number of each species observed. The unique Site ID numbers that correspond with each survey site are used to distinguish the sites. A site, with its unique ID number, will always have the same data associated with it, regardless of refined river mile (RM) designations. River mile designations are generally derived from the stream catalog combined with measurements made using King County’s Geographic Information System. Additionally, a designated site may vary a few feet from year to year: (1) if a volunteer watches on the upstream side of a bridge versus the downstream side, (2) if a new volunteer happens to watch a few yards from where a previous watcher observed, or (3) if a volunteer moves a few feet to observe in an area of better spawning habitat or visibility.

Maps are presented for each basin in the program area and depict observations of sockeye, coho, chinook, kokanee, and chum identified during the survey. The streams surveyed in the Lake Washington Watershed were grouped into the following basins: Big Bear Creek, Cedar River, East Lake Washington, West Lake Washington, West Lake Sammamish, East Lake Sammamish, Issaquah Creek, and North Lake Washington (split into North Lake Washington tributaries and Sammamish River tributaries). Salmonids were observed in all basins surveyed in 2006 except East Lake Sammamish and West Lake Washington. Trout and unidentified species were not mapped.

Big Bear Creek Basin

Volunteers surveyed 17 sites in 6 streams in the Big Bear Creek Basin in 2006 (Figure 2). From 1 to 11 sites were watched per stream, and the total number of surveys ranged from 6 to 36 per site (Table 6). Each site was monitored by 1 or 2 volunteers.

Table 6. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers³, and years the sites were watched for each stream surveyed in the Big Bear Creek Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Big Bear Creek	080105	453	0.9	9/1 - 12/8	12	1	2001 - 2006
		289	2.5	9/26 - 10/30	8	1	1997, 2003, 2006
		65	2.7	9/13 - 12/8	33	2	1997 - 2000, 2002 - 2006
		290	3.2	9/15 - 11/1	9	1	1997, 2000, 2002 - 2004, 2006
		101	4.9	9/18 - 11/17	36	1	1997 - 2006
		89	6	9/2 - 11/26	26	1	1998 - 2006
		396	6.8	9/27 - 12/5	10	1	2001 - 2004, 2006
		136	7.4	9/10 - 11/9	6	1	1998 - 2006
		503	7.85	9/13 - 12/27	35	1	2002, 2004 - 2006
		106	10	9/21 - 12/2	16	1	1998, 2006
		466	11.6	9/20 - 12/2	18	1	2001, 2006
Trib. to Bear	-	90	0.2	9/2 - 11/26	26	1	1998 - 2006
Cottage Lake Cr.	080122	102	0.6	9/19 - 11/22	16	1	1997, 1998, 2001 - 2006
		50	2.2	9/10 - 11/27	25	2	1997, 1999 - 2006
Evans Creek	080106	618	1.2	9/29 - 11/28	15	1	2006
Mackey Creek	080115	15	0.5	9/27 - 11/30	16	1	1997 - 2003, 2006
Rutherford Creek	080110	462	0.45	10/10 - 12/27	19	1	2003 - 2006

Salmonids were found in three of the six streams observed in Big Bear Creek Basin (Table 7). Chinook, coho, kokanee, and sockeye were all seen in Bear Creek. Chinook and sockeye were reported in its primary tributary, Cottage Lake Creek. The most numerous salmonid species observed by volunteers in this basin was sockeye, which was found in Big Bear Creek in the greatest quantity. No adult spawners were observed in Evans, Mackey, or Rutherford creeks.

³ "Volunteer," when used in this context, is defined as an individual, pair, or group of people who observed a stream site for adult spawning salmonids at a given time on a given date.

Table 7. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Big Bear Creek Basin for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Kokanee	Sockeye	Unid.
Big Bear Creek	453	0.9	1 (10/31)	-	1 (10/12)	125 (9/25 - 10/26)	1 (10/12)
	289*	2.5	-	-	-	75 (9/26 - 10/23)	-
	65*	2.7	3 (9/15 - 10/28)	1 (10/25)	-	272 (9/13 - 10/30)	25 (9/22 - 10/26)
	290	3.2	-	-	-	64 (9/15 - 10/27)	-
	101*	4.9	1 (10/6)	21 (9/19 - 11/4)	-	730 (9/18 - 11/5)	1 (11/5)
	89	6	5 (9/16 - 9/30)	4 (11/4 - 11/5)	-	846 (9/9 - 10/29)	34 (10/14 - 10/29)
	396	6.8	1 (10/22)	-	-	273 (9/27 - 10/22)	1 (9/27)
	136	7.4	-	-	-	117 (9/16 - 10/22)	2 (11/9)
	503	7.9	-	-	-	222 (9/15 - 11/2)	1 (9/18)
	106	10	-	1 (11/5)	-	30 (10/7 - 10/14)	-
	466	12	1 (11/5)	13 (11/5)	-	8 (10/16 - 10/28)	1 (11/24)
Trib. to Bear	90	0.2	-	-	-	-	-
Cottage Lake Cr.	102	0.6	-	-	-	143 (9/19 - 10/28)	-
	50	2.2	40 (9/21 - 10/26)	-	-	102 (9/24 - 10/30)	20 (10/10 - 10/22)
Evans Creek	618	1.2	-	-	-	-	-
Mackey Creek	15	0.5	-	-	-	-	-
Rutherford Creek	462	0.45	-	-	-	-	-

*Trout also reported at this site.

Salmon Watcher volunteers viewed Bear Creek as far as RM 11.6, which is at 232nd St. SE. Chinook, coho, and sockeye were all seen as far upstream as that location; and this distance is the furthest upstream each of these species has been observed by volunteers in Bear Creek. Only one kokanee was reported in Bear Creek Basin in 2006, and it was reported in the lowest site watched in Bear Creek.

Salmon Watcher volunteers viewed Cottage Lake Creek as far as RM 2.2, the Tolt pipeline crossing, and chinook and sockeye were both observed at that location, as they have been in previous years.

The observations of sockeye, coho, chinook, and kokanee in the Big Bear Creek Basin determined from volunteer surveys are shown in Figure 4.

Figure 4. Observations of salmonids in the Big Bear Creek Basin (see insert).

Cedar River Basin

Volunteers surveyed 20 sites in 7 streams in the Cedar River Basin in 2006 (Figure 2). From 1 to 6 sites were watched per stream, and the total number of surveys ranged from 3 to 73 per site (Table 8). Each site was monitored by 1 or 2 volunteers.

Table 8. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Cedar River Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Cedar River (Cavanaugh Pond)	080299	595	0	9/28 - 12/2	3	1	2006
		199	1	10/3 - 10/23	3	1	1999, 2006
		205	2.9	10/4 - 10/31	13	2	1999, 2001, 2005, 2006
		207	5.3	9/9 - 10/22	7	2	1999 - 2003, 2005, 2006
		139	6.4	11/12 - 2/5/07	31	1	1997 - 2006
		613	19.7	9/3 - 12/29	30	1	2005, 2006
C.R. Side Channel	-	557	0.5	9/3 - 12/29	47	2	2003, 2005, 2006
John's Creek	-	591	0	10/8 - 10/29	5	1	2005, 2006
Rock Creek	080338	410	0.2	10/9 - 12/10	53	1	2001 - 2006
		154	0.4	9/24 - 12/10	38	2	1999 - 2006
		49	1.3	9/3 - 12/29	39	2	1998 - 2006
		437	1.6	9/3 - 12/29	28	1	2000, 2005, 2006
Taylor Creek	080320	588	0.37	9/22 - 12/13	73	2	2004, 2005, 2006
		596	0.5	9/15 - 12/10	71	2	2004, 2005, 2006
		129	1.2	10/3 - 12/17	30	2	1998 - 2006
		71	1.8	9/3 - 12/29	49	2	1998 - 2006
		126	2.4	9/11 - 12/17	43	2	1998, 2001 - 2006
Trib. 0321	080321	592	0.15	11/11 - 11/15	3	1	2004 - 2006
Walsh Lake Diversion	080341	460	0.1	9/3 - 12/29	31	1	2003, 2005, 2006
		40	1.1	9/3 - 12/29	31	1	2000, 2003, 2005, 2006

Chinook and sockeye were observed at the most upstream location watched in the Cedar River: at river mile 19.7, the train trestle at Big Bend Natural Area (Table 9). Coho were seen in five of the seven streams watched in the Cedar River Basin in 2007. Sockeye were seen in all streams surveyed in the basin.

Table 9. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Cedar River Basin for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Kokanee	Sockeye	Unidentified
Cedar River	595	0	-	-	-	-	2 (9/28)
	199	1	2 (10/3)	13 (10/3 - 10/23)	1 (10/23)	154 (10/3 - 10/23)	1 (10/20)
	205	2.9	-	-	-	212 (10/4 - 10/31)	10 (10/7 - 10/31)
	207	5.3	2 (10/22)	101 (9/29 - 10/22)	-	262 (9/24 - 10/22)	-
	139	6.4	-	-	-	933 (11/12 - 1/29/07)	-
	613	19.7	23 (9/19 - 11/1)	-	-	1184 (9/19 - 12/6)	-
Cedar River Side Channel	557	0.5	7 (10/1 - 11/5)	2 (11/1 - 11/5)	-	649 (9/27 - 12/15)	43 (10/6 - 12/7)
John's Creek	591	0	-	-	-	6 (10/22 - 10/29)	-
Rock Creek	410	0.2	-	-	-	140 (10/9 - 12/6)	-
	154	0.4	-	-	-	31 (11/20 - 12/4)	-
	49	1.3	-	1 (12/16)	-	-	-
	437	1.6	-	2 (11/26 - 12/6)	-	-	-
Taylor Creek	588	0.37	4 (10/6 - 11/3)	3 (10/26 - 11/26)	-	136 (10/6 - 12/7)	12 (10/29 - 12/7)
	596	0.5	-	-	-	110 (10/9 - 12/4)	2 (11/26)
	129	1.2	-	-	-	-	-
	71	1.8	-	3 (11/25 - 12/2)	-	2 (11/17)	-
	126	2.4	-	-	-	1 (11/18)	-
Trib. 0321	592	0.2	-	-	-	18 (11/11 - 11/15)	-
Walsh Lake Diversion	460	0.1	28 (9/23 - 10/13)	4 (11/5 - 12/16)	-	543 (10/21 - 12/16)	-
	40	1.1	-	-	-	-	-

The observations of sockeye, chinook, and coho in the Cedar River Basin determined from volunteer surveys are shown in Figure 5.

Figure 5. Observations of salmonids in the Cedar River Basin (see insert).

East Lake Washington Basin

Volunteers surveyed 26 sites in 13 streams and one beach site in the East Lake Washington Basin in 2006 (Figure 2). From 1 to 6 sites were watched per stream, and the total number of surveys ranged from 7 to 106 per site (Table 10). Each site was monitored by 1 to 7 volunteers.

Table 10. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the East Lake Washington Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Coal Creek	080268	441	2	10/4 - 12/1	19	1	2001 - 2006
		442	2.1	9/15 - 12/21	106	8	2001 - 2006
Coal Cr. Trib.	080273	212	0.1	10/3 - 12/12	19	1	1999, 2002 - 2004, 2006
Cochran Springs Creek	080253	197	0.15	9/21 - 12/21	36	3	2000, 2005, 2006
East Creek	-	514	0.2	9/16 - 11/29	16	2	2003, 2005, 2006
Goff Creek	080264	447	0.1	9/16 - 12/9	25	1	2003 - 2006
Kelsey Creek	080259	13	2	9/16 - 12/31	70	6	1997 - 2006
		124	2.4	9/15 - 12/29	27	1	1997 - 2006
		120	3	9/17 - 12/17	26	3	1997 - 2006
		614	4.7	9/15 - 11/7	14	1	2006
		586	4.9	9/22 - 11/25	22	1	2004 - 2006
		45	5	9/16 - 12/9	24	1	1997 - 2000, 2003, 2006
Lake Wa. Beach	080028	77	30.8	10/7 - 11/2	8	1	1997, 1998, 2003, 2004, 2006
May Creek	080282	208	0.2	9/3 - 12/9	36	3	2001 - 2006
		432	0.5	9/3 - 11/29	15	1	2000, 2004 - 2006
Mercer Slough	080259	445	1.6	9/11 - 12/31	49	3	2001, 2003 - 2006
Richards Creek	080261	27	0.7	9/11 - 12/29	69	3	1997 - 2006
		80	1.6	9/14 - 10/25	15	1	1998, 2002 - 2006
Sears Creek	-	48	0	10/1 - 10/29	7	1	2002 - 2004, 2006
Sturtevant Creek	080260	117	0.25	9/14 - 12/9	39	2	1997 - 1999, 2001 - 2006
Valley Creek	080266	122	0.1	9/16 - 12/7	33	2	1997 - 2001, 2003 - 2006
		221	0.7	9/12 - 12/22	30	1	1999 - 2006
West Trib. Kelsey Cr.	080264	116	0.25	9/27 - 10/25	12	1	1998, 1999, 2001 - 2006
		325	0.7	9/15 - 12/31	54	1	1997, 2001 - 2006
		506	0.9	9/15 - 12/3	30	2	2002 - 2006
		73	1.1	9/2 - 12/3	31	1	1998, 2000, 2004 - 2006

Salmonids were found in 10 of the 13 streams surveyed in 2006 (Table 11). Chinook were seen in 8 of those streams, coho were seen in 6 streams, and sockeye were seen in 4 streams.

Coho and chinook were both observed at the mouth of Sears Creek for the first time by volunteers. This site has been watched in three prior years (Table 10) with no fish sighted by volunteers. Chinook have been seen in the creek by professional surveyors, but coho never have. It is considered likely that the coho reported were actually chinook. For more information, see Appendix B.

Table 11. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the East Lake Washington Basin for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Unid.
Coal Creek	441	2	-	-	-	-
	442	2.1	-	2 (11/27 - 12/2)	1 (11/3)	2 (11/22 - 12/9)
Coal Cr. Trib.	212	0.1	-	3 (11/18)	-	-
Cochran Springs Cr.	197	0.2	-	-	-	-
East Creek	514	0.2	-	-	-	-
Goff Creek	447	0.1	20 (9/23 - 10/21)	-	-	-
Kelsey Creek	13	2	14 (9/23 - 10/26)	1 (10/17)	81 (9/23 - 10/28)	5 (10/17 - 11/14)
	124	2.4	8 (9/15 - 10/26)	-	13 (9/22 - 10/26)	3 (9/18 - 10/23)
	120	3	3 (10/6)	1 (11/3)	8 (10/20 - 10/27)	21 (10/7 - 11/4)
	614	4.7	-	-	-	1 (10/19)
	586	4.9	2 (9/22 - 10/22)	-	-	3 (10/21)
	45	5	-	-	-	-
Lake Wa. Beach	77	31	-	-	-	-
May Creek	208	0.2	-	11 (9/15 - 9/25)	299 (10/12 - 11/29)	4 (10/22 - 12/9)
	432	0.5	14 (9/24 - 11/21)	-	93 (10/12 - 11/14)	-
Mercer Slough	445	1.6	13 (9/15 - 10/14)	-	39 (9/19 - 10/26)	8 (10/3 - 10/31)
Richards Creek	27	0.7	6 (10/2 - 10/4)	-	-	-
	80	1.6	-	-	-	-
Sears Creek	48	0	2 (10/20 - 10/21)	6 (10/8 - 10/21)	-	-
Sturtevant Creek	117	0.3	-	-	-	-
Valley Creek	122	0.1	1 (10/12)	-	-	-
	221	0.7	-	-	-	-
West Trib. Kelsey Cr.	116	0.3	1 (10/25)	-	6 (10/6)	3 (10/23)
	325	0.7	25 (9/15 - 10/21)	2 (10/16 - 10/21)	6 (10/16 - 10/18)	11 (9/15 - 12/3)
	506	0.9	8 (9/15 - 10/21)	-	9 (10/7 - 10/21)	4 (10/5 - 10/26)
	73	1.1	-	-	-	2 (9/24 - 9/30)

The observations of sockeye, chinook, and coho in the East Lake Washington Basin determined from volunteer surveys are shown in Figure 6.

Figure 6. Observations of salmonids in the East Lake Washington and West Lake Sammamish Basins (see insert).

West Lake Washington Basin

Volunteers surveyed 1 sites on Taylor Creek in the West Lake Washington Basin in 2006 (Table 12). One volunteer surveyed the site 4 times.

Table 12. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the West Lake Washington Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Taylor Creek	-	223	0.1	9/27 - 10/23	4	1	2001 - 2003, 2006

No adult spawners were observed in Taylor Creek (Table 13).

Table 13. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the West Lake Washington Basin for the 2006 spawning season.

Stream	Site ID	RM	Kokanee	Unidentified
Taylor Creek	223	0.1	-	-

East Lake Sammamish Basin

Volunteers surveyed 1 sites on Laughing Jacobs Creek in the East Lake Sammamish Basin in 2006 (Table 14). One volunteer surveyed the site 4 times.

Table 14. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the East Lake Sammamish Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Laughing Jacobs Cr.	080166	406	0	9/8 - 11/17	4	1	2000, 2004 - 2006

No adult spawners were observed in Laughing Jacobs Creek (Table 15).

Table 15. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the East Lake Sammamish Basin for the 2006 spawning season.

Stream	Site ID	RM	Chum	Coho	Kokanee
Laughing Jacobs Cr.	406	0	-	-	-

West Lake Sammamish Basin

Volunteers surveyed 5 sites on 2 streams in the West Lake Sammamish Basin in 2006 (Table 16). From 18 to 60 surveys were conducted per site. Each site was monitored by 1 or 2 volunteers.

Table 16. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the West Lake Sammamish Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Idylwood Cr.	080143	599	0.2	9/5 - 12/30	38	2	2006
		423	0.1	9/18 - 12/15	18	1	2000,- 2006
Lewis Creek	080162	327	0.1	10/2 - 12/30	27	1	1997, 2001 - 2006
		598	0.4	10/5 - 1/7/07	60	1	2004 - 2006
		283	0.5	9/23 - 12/30	37	3	1999, 2001 - 2006

Salmonids were found in both Idylwood and Lewis creeks (Table 17). Aside from one unidentified fish, kokanee were the only species reported in Lewis Creek. The only adult fish observed in Idylwood Creek was one unidentified species. Prior to 2006, the only site watched on Idylwood Creek was at the mouth; therefore, the unidentified fish sited at Lake Sammamish Parkway is the furthest upstream a fish has been seen in this creek by volunteers.

Table 17. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the West Lake Sammamish Basin for the 2006 spawning season.

Stream	Site ID	RM	Kokanee	Unidentified
Idylwood Cr.	599	0.2	-	1 (11/12)
	423	0.1	-	-
Lewis Creek	327	0.05	26 (11/9 - 12/30)	-
	598	0.37	156 (11/10 - 1/1/07)	-
	283	0.5	3 (10/31 - 11/22)	1 (11/30)

The observations of kokanee in the West Lake Sammamish Basin determined from volunteer surveys are shown above in Figure 6, "Observations of Salmonids in the East Lake Washington and West Lake Sammamish Basins."

Issaquah Creek Basin

Volunteers surveyed 7 sites in 3 streams in Issaquah Creek Basin in 2006 (Figure 2). The total number of surveys ranged from 6 to 25 per site (Table 18). Each site was monitored by 1 volunteer.

Table 18. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Issaquah Creek Basin for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
E. Fork Issaquah Creek	080183	6	3.2	10/2 - 12/14	22	1	1997, 1999 - 2002, 2006
Issaquah Creek	080178	9	3	9/26 - 12/3	15	1	1999, 2006
		61	3	9/27 - 12/28	13	1	1997, 1998, 2006
		60	3.4	9/8 - 12/24	6	1	1997, 1998, 2005, 2006
		615	4.4	9/29 - 12/31	8	1	2006
		52	5.8	9/29 - 12/13	25	1	1998 - 2000, 2003 - 2006
Tibbetts Creek	080169	455	1.4	10/3 - 10/31	9	1	2001, 2002, 2004, 2006

Chinook and coho were reported in Issaquah Creek and East Fork Issaquah Creek (Table 19). Sockeye were reported only in Issaquah Creek. No adult spawners were reported in Tibbetts Creek.

Table 19. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Issaquah Creek Basin for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Unid.
E. Fork Issaquah Creek	6	3.2	1 (11/15)	15 (11/15 - 12/14)	-	1 (11/27)
Issaquah Creek	9	3	275 (9/26 - 12/3)	2 (12/3)	3 (9/29 - 12/3)	182 (9/26 - 11/28)
	61	3	113 (9/27 - 10/13)	36 (10/25 - 12/28)	-	18 (10/4 - 11/8)
	60	3.4	17 (9/26 - 10/31)	10 (9/26 - 12/24)	2 (9/26)	-
	615	4.4	2 (10/3)	-	1 (10/17)	-
	52	5.8	4 (9/29 - 10/16)	1 (11/24)	-	-
Tibbetts Creek	455	1.4	-	-	-	-

*Trout were also reported at this site.

The distributions of chinook, coho, and sockeye in the Issaquah Creek Basin determined from volunteer observations are shown in Figure 7.

Figure 7. Observations of salmonids in the Issaquah Creek Basin (see insert).

North Lake Washington Tributaries

The North Lake Washington Tributaries are those streams flowing into the north end of Lake Washington (e.g., Denny, McAleer, and Thornton creeks, the Sammamish River). Volunteers surveyed 28 sites in 11 streams in 2006 (Figure 2). From 1 to 8 sites were watched per stream, and the total number of surveys ranged from 3 to 46 per site (Table 20). Each site was monitored by 1 or 2 volunteers.

Table 20. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the North Lake Washington Tributaries for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Brookside Creek	080049	476	0.1	9/15 - 12/2	9	2	2001 - 2006
Denny Creek	-	5	0.1	10/11 - 12/2	21	2	1997, 2000, 2002, 2003, 2005, 2006
Horse Creek	-	277	0.1	10/13 - 11/25	14	1	2003, 2005, 2006
Juanita Creek	080230	389	0	9/16 - 9/27	4	1	2000, 2001, 2004 - 2006
		411	0.7	9/15 - 12/13	18	1	2000, 2004 - 2006
McAleer Creek	080049	21	0.1	9/14 - 11/11	7	1	2006
		22	0.2	9/14 - 11/11	7	1	2006
		144	0.3	9/15 - 12/2	21	3	1997, 2001 - 2006
		498	0.8	9/14 - 12/2	9	2	2001 - 2006
		266	0.8	9/15 - 12/2	9	2	1999 - 2006
		56	1.1	10/15 - 12/3	3	1	1997 - 2006
		314	1.6	9/17 - 12/3	11	2	1997, 2000 - 2006
		315	2.1	10/15 - 12/3	3	1	1997, 2001 - 2006
Peters Creek	080104	452	0.5	9/10 - 12/24	16	1	2002 - 2006
Sammamish River	080087	587	3.9	9/22 - 10/2	3	1	2006
		41	7.3	9/16 - 12/1	46	2	1998, 1999, 2001 - 2003, 2005, 2006
S. Fk. Thornton Cr.	080033	191	0.2	12/16 - 12/30	3	1	1999, 2000, 2006
		192	0.7	10/3 - 11/12	7	1	1999 - 2004, 2006
		527	1.2	9/22 - 12/10	32	2	2002 - 2006
Thornton Creek	080030	183	0.1	9/1 - 12/12	13	1	1997, 2000 - 2006
		184	0.2	10/3 - 11/22	16	1	1999 - 2003, 2006
		186	0.9	10/4 - 12/15	21	1	1997, 1999 - 2002, 2006
		387	1.2	10/7 - 12/16	12	1	2001, 2006
		189	2.1	10/9 - 11/18	7	1	1999, 2006
		617	2.4	10/1 - 11/25	17	1	2006
		528	2.8	9/5 - 12/29	33	1	2002 - 2006
Willow Creek	-	388	0.1	10/6 - 12/31	23	1	2003, 2004, 2006
Woodin Creek	-	228	0.3	10/21 - 12/17	8	1	1999, 2002, 2003, 2006

Salmonids were found in 6 of the 11 streams surveyed in the North Lake Washington Tributaries (Table 21). Coho were only seen in McAleer Creek and the Sammamish River in this basin. Sockeye were observed in very small numbers in Horse, McAleer, and Thornton creeks and the Sammamish River. The only fish observed in Peters Creek were unidentified species. No salmonids were seen in Brookside Creek, Denny Creek, Juanita Creek, South Fork Thornton Creek, Willow Creek, or Woodin Creek.

Table 21. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the North Lake Washington Tributaries for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Sockeye	Unid.
Brookside Creek	476	0.1	-	-	-	-
Denny Creek	5	0.1	-	-	-	-
Horse Creek	277	0.1	-	-	1 (10/28)	7 (10/16 - 11/3)
Juanita Creek	389	0	-	-	-	-
	411	0.7	-	-	-	-
McAleer Creek	21	0.1	-	-	-	-
	22	0.2	-	-	-	-
	144	0.3	-	-	1 (10/14)	-
	498	0.79	2 (10/22)	1 (11/5)	-	-
	266	0.8	-	-	1 (10/22)	-
	56	1.1	-	-	-	-
	314	1.6	-	-	-	-
	315	2.1	-	-	2 (10/23)	-
Peters Creek	452	0.5	-	-	-	2 (9/16 - 10/8)
Sammamish River	587	3.9	8 (9/26 - 10/2)	1 (9/26)	26 (9/22 - 10/2)	-
	41	7.3	-	7 (9/30 - 11/11)	78 (9/16 - 11/25)	2 (10/24 - 12/1)
South Fk. Thornton Creek	191	0.2	-	-	-	-
	192	0.7	-	-	-	-
	527	1.15	-	-	-	-
Thornton Creek	183	0.1	-	-	-	-
	184	0.2	-	-	1 (11/1)	-
	186	0.9	-	-	-	-
	387	1.15	-	-	-	5 (10/28)
	189	2.1	-	-	-	-
	617	2.4	-	-	-	-
	528	2.8	-	-	-	-
Willow Creek	388	0.05	-	-	-	-
Woodin Creek	228	0.3	-	-	-	-

The distribution of chinook, coho, and sockeye in the North Lake Washington Tributaries determined from volunteer observations are shown in Figure 8.

Figure 8. Observations of salmonids in the North Lake Washington Tributaries (see insert).

Sammamish River Tributaries

The Sammamish River Tributaries are those streams flowing into the Sammamish River from waters originating in Snohomish County (Little Bear, North, and Swamp creeks; Big Bear Creek is discussed separately above). Volunteers surveyed 18 sites on 4 Sammamish River tributaries in 2006 (Figure 2). From 1 to 10 sites were watched per stream, and the total number of surveys ranged from 3 to 46 per site (Table 22). Each site was monitored by 1 or 2 volunteers, and one site was watched by 4 volunteers.

Table 22. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Sammamish River Tributaries for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Little Bear Creek	080080	114	0	9/13 - 12/18	46	2	1999, 2001, 2002, 2005, 2006
		67	0.2	9/13 - 11/26	18	1	1997 - 1999, 2001 - 2006
		175	0.3	9/15 - 12/17	28	2	1997, 2000, 2002, 2006
		176	1.3	9/11 - 11/28	37	4	1997, 2000 - 2006
		14	1.9	9/13 - 10/30	27	2	1999, 2000, 2002 - 2004, 2006
		231	3.2	10/2 - 12/19	15	1	1997, 1999, 2000, 2002, 2004, 2006
Little Swamp Creek	080060	505	0.24	9/15 - 10/30	13	1	2002 - 2006
North Creek	080070	438	0.01	9/25 - 10/26	9	1	2000, 2003, 2004, 2006
		112	0.9	9/18 - 11/22	22	2	1998 - 2006
		408	0.95	9/20 - 10/25	7	1	2000 - 2006
		433	1	9/17 - 9/22	3	1	2006
		57	1.05	9/15 - 12/18	43	2	1998, 2001, 2004 - 2006
		113	1.5	9/12 - 12/4	21	1	1998, 2000, 2001, 2003, 2006
		255	1.8	9/13 - 9/22	4	1	1999 - 2004, 2006
		425	2.6	9/30 - 10/29	10	1	2006
		253	3	9/24 - 12/30	15	1	1997, 1999 - 2001, 2006
		553	3.6	9/24 - 12/30	14	1	2003, 2006
Swamp Creek	080059	34	0.3	9/18 - 10/31	11	1	1997, 1999, 2000, 2002 - 2006

Salmonids were found in 2 of the 4 streams surveyed (Table 23). Chinook, coho, sockeye, and kokanee were all observed in Little Bear Creek and North Creek. A chinook was reported by a volunteer further upstream than in previous surveys in Little Bear Creek: it was reported at NE 205th St. (river mile 1.9). However, this report was not verified by professional biologists, and the volunteers who reported the fish have limited fish identification experience. No fish were observed in Swamp or Little Swamp creeks.

Table 23. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in the Sammamish River Tributaries for the 2006 spawning season.

Stream	Site ID	RM	Chinook	Coho	Kokanee	Sockeye	Unid.
Little Bear Creek	114*	0	3 (10/8 - 10/22)	19 (9/15 - 10/20)	-	546 (9/17 - 11/4)	82 (9/15 - 10/19)
	67	0.2	-	-	-	358 (9/13 - 11/3)	-
	175	0.3	-	-	-	404 (9/15 - 11/4)	9 (10/4 - 10/22)
	176	1.3	1 (9/14)	16 (9/30 - 10/24)	2 (10/14)	486 (9/14 - 10/29)	1 (9/17)
	14	1.9	1 (9/14)	5 (9/22 - 10/20)	1 (10/28)	417 (9/14 - 10/28)	14 (9/14 - 10/16)
	231	3.2	-	-	-	77 (10/2 - 10/23)	1 (10/15)
Little Swamp Creek	505	0.2	-	-	-	-	-
North Creek	438	0	-	-	-	51 (9/29 - 10/21)	-
	112	0.9	-	-	-	70 (9/25 - 11/1)	-
	408	1	-	-	-	8 (9/27 - 10/18)	-
	433	1	-	-	-	-	-
	57	1.1	1 (10/1)	-	-	246 (9/18 - 10/28)	6 (10/1 - 10/28)
	113	1.5	-	-	-	47 (9/28 - 11/1)	-
	255	1.8	-	-	-	6 (9/21 - 9/22)	1 (9/21)
	425	2.6	1 (9/30)	2 (10/21 - 10/22)	2 (10/15)	8 (10/1 - 10/22)	9 (10/14 - 10/29)
	253	3	1 (10/5)	3 (10/8 - 10/14)	-	153 (9/24 - 10/30)	-
	553	3.6	3 (9/24 - 9/30)	2 (10/8 - 10/14)	-	157 (9/24 - 10/25)	2 (10/8 - 10/12)
Swamp Creek	34	0.3	-	-	-	-	-

*Trout were also reported at this site.

The distributions of chinook, coho, sockeye, and kokanee in the Sammamish River Tributaries determined from volunteer observations are shown in Figure 9.

Figure 9. Observations of salmonids in the Sammamish River Tributaries (see insert).

Vashon Island

Volunteers surveyed 9 sites in 4 streams on Vashon Island in 2006 (Figure 2). From 1 to 4 sites were watched per stream, and the total number of surveys ranged from 3 to 16 per site (Table 24). All sites were monitored by 1 volunteer each.

Table 24. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed on Vashon Island for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Christensen Creek		497	0	11/13 - 11/30	3	1	2001 - 2003, 2005, 2006
Judd Creek	150129	490	0.9	11/8 - 12/31	16	1	2001, 2003, 2004, 2006
		492	1.25	11/5 - 11/25	9	1	2001 - 2003, 2005, 2006
		491	1.4	11/6 - 11/30	10	1	2002 - 2006
		493	1.8	11/10 - 11/24	6	1	2001 - 2006
Judd Cr. Tributary		146	0	11/5 - 12/28	11	1	1998, 2001 - 2006
Shinglemill Creek	150159	148	0.5	11/9 - 11/30	5	1	1998, 2001 - 2003, 2005, 2006
		534	0	11/10 - 11/24	7	1	2002 - 2006

Salmonids were found in 1 of the 4 streams surveyed (Table 25). Chum and coho were observed in Judd Creek. No fish were observed in Christensen or Shinglemill creeks or the tributary to Judd Creek.

Table 25. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed on Vashon Island for the 2006 spawning season.

Stream	Site ID	RM	Chum	Coho
Christensen Creek	497	0	-	-
Judd Creek	490	0.9	-	1 (11/12)
	492	1.25	12 (11/23 - 11/25)	12 (11/5)
	491	1.4	-	3 (11/8 - 11/16)
	493	1.8	-	-
Judd Cr. Tributary	146	0	-	-
Shinglemill Creek	148	0.5	-	-
	534	0	-	-

The distribution of coho and chum on Vashon Island determined from volunteer observations are shown in Figure 10.

Figure 10. Observations of salmonids on Vashon Island (see insert).

Central Puget Sound

Streams draining to Puget Sound that were surveyed during the 2006 Salmon Watcher season are both inside and outside WRIA 9 (Table 26). Those streams within WRIA 8 include Boeing Creek, Pipers Creek, and Venema Creek⁴. A total of 6 sites in 4 streams draining to Puget Sound were watched in 2006. Except the site along Venema Creek, all sites were monitored by a single volunteer.

Table 26. Stream number, site ID, site location (listed in river miles, RM), survey dates, total number of surveys, number of volunteers, and years the sites were watched for each stream surveyed in the Central Puget Sound for the 2006 spawning season.

Stream	Stream #	Site ID	RM	Survey Dates	# Surveys	# Vols.	Years Watched
Boeing Creek*	080017	436	0.1	9/22 - 12/19	8	1	2000 - 2006
Longfellow Creek	090360	177	0.6	11/6 - 11/27	7	1	1999 - 2006
		179	0.8	10/28 - 12/30	15	1	1998 - 2006
		180	0.9	10/1 - 10/15	2	1	1999 - 2004, 2006
Pipers Creek*	080023	181	0.2	9/27 - 12/17	23	1	1999 - 2002, 2004 - 2006
Venema Creek*	-	383	0.02	9/30 - 12/31	54	2	2000, 2001, 2004 - 2006

*Streams within WRIA 8.

Adult salmon were seen in all streams observed that drain to Puget Sound (Table 27) (this discussion does not include Vashon streams; for discussion of Vashon Island streams, see section above). Chum and coho were observed in Boeing Creek. Coho were also seen in Longfellow Creek.. Chum were observed in Pipers and Venema creeks.

Table 27. Site ID, RM, and fish counts (live and dead) with dates seen at each stream surveyed in Central Puget Sound for the 2006 spawning season.

Stream	Site ID	RM	Chum	Coho	Unidentified
Boeing Creek*	436	0.1	115 (11/7 - 12/19)	5 (11/9)	-
Longfellow Creek	177	0.6	-	-	1 (11/18)
	179	0.8	-	2 (11/5 - 11/12)	1 (11/20)
	180	0.9	-	-	-
Pipers Creek*	181	0.2	38 (10/28 - 12/17)	-	-
Venema Creek*	383	0.02	93 (11/6 - 12/11)	-	13 (12/9)

*Streams within WRIA 8.

The observation of chum and coho in the Central Puget Sound streams determined from volunteer surveys shown in Figure 11.

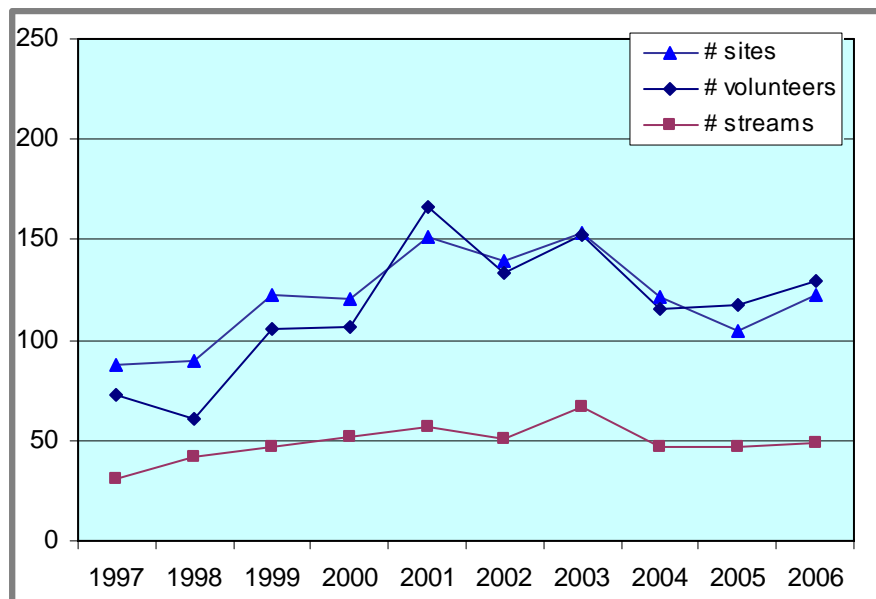
Figure 11. Observations of salmonids in Puget Sound Basins (see insert).

⁴ Fauntleroy Creek is also watched by volunteers; however, survey methods are different from those of this program. No fish were observed in the cove or the creek by the Fauntleroy Creek volunteers in 2006.

Volunteer Activity

The trend in the number of volunteers participating in the Salmon Watcher Program has varied over the 11 years of the program (Figure 12). The last 3 years have been relatively consistent in terms of numbers of volunteers, sites, and streams in the program. It should be noted that many volunteers watch more than one site, and many sites have more than one volunteer watching at it.

Figure 12. Number of volunteers (defined as an individual, pair, or group) watching in the Lake Washington Watershed from 1997⁵-2006.



Contact with Citizens

Volunteers were asked to keep track of how many citizens they came into contact with during their time by the streams. Salmon Watcher volunteers spoke with at least 608 citizens during the 2006 spawning season. Table 28 details the numbers of citizens who interacted with volunteers.

Table 28. Number of citizen contacts made by all Salmon Watcher volunteers in each of the surveyed basins.

Big Bear Creek	Cedar River	E. Lake Wash.	W. Lake Wash.	E. Lake Samm.	W. Lake Samm.	Issaquah Creek	N. Lake Wash. ²	Samm. River Tribs.	Vashon Island	Central Puget Sound*
72	132	99	2	0	15	13	61	144	26	44

* Includes streams both inside (40 citizens) and outside (4 citizens) funded program area.

⁵ See previous Salmon Watcher annual reports for details on yearly participation.

Time Spent by Volunteers

Salmon Watcher volunteers are asked to record the start and end times of each site visit. Those times are used to calculate the amount of time volunteers spend watching stream-side. Occasionally, some volunteers do not fill in that part of the data sheet. Time underestimates notwithstanding, Table 29 illustrates the approximate amount of time spent by volunteers in each basin. More than 1,131 hours were volunteered during the 2006 Salmon Watcher season

Table 29. Number of hours spent by Salmon Watcher volunteers in each of the surveyed basins.

Big Bear Creek	Cedar River	E. Lake Wash.	W. Lake Wash.	E. Lake Samm.	W. Lake Samm.	Issaquah Creek	N. Lake Wash.	Samm. River Tribs.	Vashon	Central Puget Sound ¹
108	295	316	1	2	44	43	143	109	30	41

¹ Includes streams both inside (31 hours) and outside (10 hours) funded program area.

Limitations of Volunteer Data

Individuals, citizen groups, non-profit organizations, and government agencies all use data from the Salmon Watcher Program for various reasons (for an extensive list of reasons, please see the report from the 2000 Salmon Watcher season, Vanderhoof 2001). However, several qualifications must be kept in mind when reviewing the data in this report and especially when using the data for any purpose other than describing fish presence. The level of expertise of the volunteers varies widely: some volunteers have past experience identifying fish through professional or school training, recreational fishing, or personal interest. Other volunteers learned to identify salmon for the first time from the Salmon Watcher training session. For additional discussion on the limitations of volunteer data, please see previous reports (e.g., King County 2004).

Every year volunteers from previous years return and new volunteers enter the program who must learn to identify the different species of salmonids they might encounter in their assigned streams. In 2006, percent of Lake Washington Watershed volunteers were returnees (see the beginning of the Results and Discussion section above). The variation in numbers of new versus returning volunteers has remained somewhat consistent for the past 4 years, and therefore the level of accuracy has likely been relatively consistent during this time period.

Although training sessions are thorough, identification materials are provided, and technical experts are available for help with identification, some misidentifications will occur.

It is important to keep in mind that the absence of spawner sightings in a stream does not mean that spawning salmonids are not accessing that location. It does mean that fish were not seen by the volunteer at the site at the time of survey. Because of this important distinction and the other mentioned limitations of this type of survey, data in this report should be used only to indicate the presence of adult salmon at specific locations (species distribution). All other uses and benefits derived from the compilation of this data should be used cautiously and with the specific limitations of the data in mind. With very few exceptions, because most or all of these parameters are different for every stream surveyed from 1996 through 2006, comparisons of raw data likely would not yield valid information about changes in populations. Therefore, the best use for the data is in determining presence of fish and mapping fish distribution.

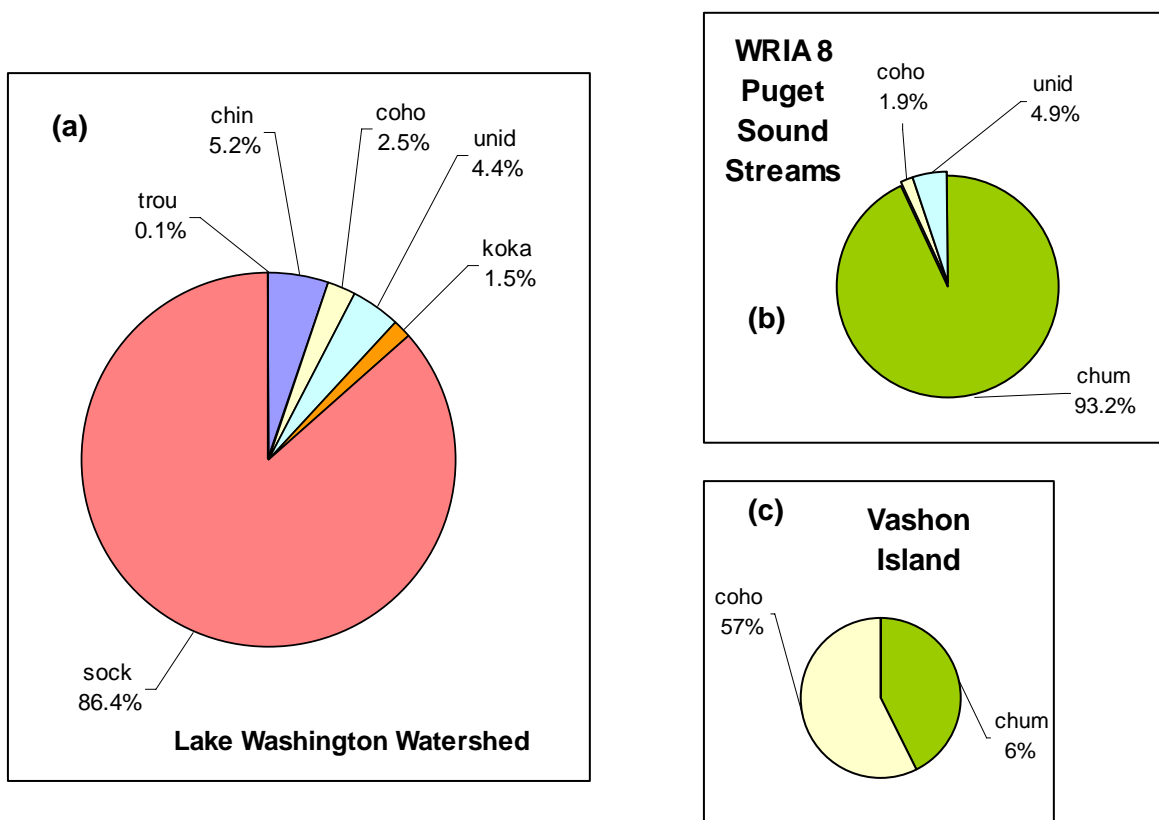
Species Summary

Salmon Watcher Program volunteers recorded observations of all salmonid fish located during their stationary surveys, including chinook, coho, chum, and sockeye salmon, kokanee, and trout (which may have been cutthroat or rainbow trout). The ratios of all fish observed, including unidentified fish, is depicted in Figure 13a for the Lake Washington Watershed, 13b for WRIA 8 streams that drain to Puget Sound, and 13c for Vashon Island.

Of the 56 streams in the study area surveyed in 2006, sockeye were found in 21 streams. Coho were found in 21 streams, chinook in 20 streams, kokanee were reported in 5 streams, and trout were reported in 2 streams. Sockeye was the most abundant species counted by volunteers in the Lake Washington Watershed by far, followed by chinook then coho. Chum were observed in a total of 4 streams in the study area, including 1 on Vashon Island.

If a volunteer was unable to positively identify what species a fish was, the fish was tallied as “unidentified” (reporting a fish as unidentified was preferable to falsely identifying a species). Of the 13,135 total adult fish observed in the Lake Washington Watershed, Vashon Island, and other WRIA 8 streams in 2006, 580 were tallied as unidentified (4.4 percent). Unidentified adult salmonids were counted in 21 streams in the study area.

Figure 13. Percentage of total fish observed in 2006 by volunteers in (a) the Lake Washington Watershed, (b) other WRIA 8 streams, and (c) Vashon Island.



Marked Fish and Juvenile Fish

On the data forms, one column asked the volunteers to note the “# of fish without adipose.” Hatcheries in the Lake Washington Watershed remove the adipose fins of chinook and coho before they are released into the wild. Volunteers were instructed to focus on species identification first and foremost and only try to report on adipose fin clips when possible. Most volunteers did not fill in this column, or often they noted they could not tell. Generally, water clarity must be excellent and the fish must be close and somewhat still in order to determine the presence of an adipose fin on a live fish.

No sockeye from hatcheries in the Lake Washington Watershed had their adipose fins clipped. However, volunteers reported sockeye without adipose fins in 6 streams (Table 30). Because sockeye are too small to have their adipose fins clipped when they are released from hatcheries, their adipose fins remain intact. Therefore, if sockeye are reported with missing adipose fins, either the fish are sockeye with adipose fins that were difficult to see in the stream, or the fish were another species such as coho who were missing their adipose fins. Likely, the reports of sockeye with fin clips results from a combination of both of these reasons. The report of one kokanee with a fin clip was likely an error due to one of these reasons as well; kokanee are not raised in hatcheries and therefore would not be fin-clipped.

Volunteers made note of fry and/or juvenile fish in a total of 25 streams in 7 basins.

Table 30. Number of adipose fin clips as reported by volunteer Salmon Watchers. Streams are listed in order of number of adipose-clipped fish reported.

Stream	chinook	coho	sockeye*	unidentified	total
Issaquah Creek	173	7			180
Little Bear Creek	1	1	62		64
West Trib. Kelsey Cr.	29	2	8	10	49
Kelsey Creek	4		33	9	46
North Creek	1		42		43
Big Bear Creek	1		16		17
Goff Creek	9				9
Mercer Slough	3		4		7
May Creek	4				4
East Fork Issaquah Cr.		3			3
Boeing Creek		2			2
Walsh Lake Diversion	2				2
Coal Creek		1			1
Valley Creek	1				1
Total	228	16	165	19	428

*See text for discussion about sockeye reported with adipose clips.

Chinook Salmon

Chinook were observed in 6 basins in the study area during the 2006 surveys (Figure 14). A total of 490 live fish and 178 carcasses were found in 20 streams throughout the Lake Washington Watershed. Streams in which chinook were reported include (in order of most to least fish seen): Issaquah Creek (411), Cottage Lake Creek (40), West Trib. Kelsey Creek (34), Walsh Lake Diversion (28), Cedar River (27), Kelsey Creek (27), Goff Creek (20), May Creek (14), Mercer Slough (13), Big Bear Creek (12), Sammamish River (8), Cedar River Side Channel at Dorre Don (7), North Creek (6), Richards Creek (6), Little Bear Creek (5), Taylor Creek (4), McAleer Creek (2), Sears Creek (2), East Fork Issaquah Creek (1), and Valley Creek (1).

Chinook were reported further upstream in Bear Creek than they had been previously seen by volunteers: they were reported as far upstream as RM 11.6. They were also reported further upstream in Little Bear Creek than previously by volunteers (to RM 1.9). Chinook were reported by volunteers for the first time in Sear Creek, which is in the East Lake Washington Basin; they were seen at the mouth of the creek. These observations mark an expansion of the known distribution of chinook as reported by Salmon Watcher volunteers.

Figure 14. Distribution of chinook salmon in the program area based on Salmon Watcher observations (see insert).

Sockeye Salmon

Sockeye were by far the most numerous fish counted by volunteers. Sockeye were observed in 6 basins (Figure 15). A total of 10,237 live fish and 856 carcasses were observed in 21 streams (in order of most to least fish seen): Big Bear Creek (2762), Cedar River (2745), Little Bear Creek (2288), North Creek (746), Cedar River Side Channel at Dorre Don (649), Walsh Lake Diversion (543), May Creek (392), Taylor Creek (249), Cottage Lake Creek (245), Rock Creek (171), Sammamish River (104), Kelsey Creek (102), Mercer Slough (39), West Trib. Kelsey Creek (21), Trib. 0321 to Taylor (18), Issaquah Creek (6), John's Creek (6), McAleer Creek (4), Coal Creek (1), Horse Creek (1), and Thornton Creek (1).

Sockeye were reported further upstream in Bear Creek than they had been previously seen by volunteers: they were reported as far upstream as RM 11.6. Previously they had only been reported to RM 6, at NE 133rd St. This observation marks an expansion of the known distribution of sockeye as reported by Salmon Watcher volunteers.

Figure 15. Distribution of sockeye salmon in the program area based on Salmon Watcher observations (see insert).

Coho Salmon

Coho were observed in 7 Lake Washington Watershed basins including WRIA 8 Puget Sound streams, and they were observed on Vashon Island (Figure 16). They were also reported in Longfellow Creek. A total of 274 live coho and 64 carcasses were reported in 17 streams in the Lake Washington Watershed, one stream on Vashon, one stream in WRIA 8 waters leading to Puget Sound and one stream in WRIA 9 waters leading to Puget sound (in order of most to least fish seen): Cedar River (114), Issaquah Creek (49), Big Bear Creek (40), Little Bear Creek (40), Judd Creek (16), East Fork Issaquah Creek (15), May Creek (11), Sammamish River (8), North Creek (7), Sears Creek (6), Taylor Creek (6), Boeing Creek (5), Walsh Lake Diversion (4), Rock Creek (3), Trib to Coal Creek (3), Cedar River Side Channel at Dorre Don (2), Coal Creek (2), Kelsey Creek (2), Longfellow Creek (2), West Trib. Kelsey Creek (2), and McAleer Creek (1).

Coho were reported further upstream in Bear Creek than they had been previously seen by volunteers: they were reported as far upstream as RM 11.6. Previously they had only been reported to RM 6, at NE 133rd St. Coho were reported by volunteers for the first time in Sear Creek, which is in the East Lake Washington Basin; they were seen at the mouth of the creek. These observations mark an expansion of the known distribution of coho as reported by Salmon Watcher volunteers.

Figure 16. Distribution of coho salmon in the program area based on Salmon Watcher observations (see insert).

Kokanee

Kokanee were observed in 4 basins (Figure 17). A total of 187 live fish and 5 carcasses were counted in 5 streams (in order of most to least fish seen): Lewis Creek (185), Little Bear Creek (3), North Creek (2), Big Bear Creek (1), and Cedar River (1).

Figure 17. Distribution of kokanee in the program area based on Salmon Watcher observations (see insert).

Chum

On Vashon Island, only 12 live chum were reported in Judd Creek. Chum were reported in Boeing Creek (69 live and 46 dead). In Pipers Creek, 20 live and 18 dead chum were reported. In Venema Creek, 37 live and 56 dead chum were observed.

Trout and Unidentified Species

Trout were reported in 2 streams in as many basins. Trout may have been cutthroat or rainbow. Although all trout species are discussed in training, it is frequently too difficult to distinguish these species in the field.

Fish of unidentified species were observed in 21 streams in 8 basins in the Lake Washington Watershed including WRIA 8 Puget Sound streams: 386 live fish and 194 carcasses were unidentifiable. Thirteen unidentified carcasses were reported in Venema Creek. Additionally, a single unidentified live fish and a single unidentified dead fish was observed in Longfellow Creek.

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Appendix A

Data Collection Form used in 2006

Appendix B

Kelsey Creek Salmon Spawner Survey Results

Salmon Spawner Survey 2006, Kelsey Creek and Tributaries

Prepared for City of Bellevue By the Watershed Company

Chinook are easily misidentified as coho by volunteers in the Kelsey Creek Basin for several reasons. (1) Chinook in Kelsey Creek can be very red in color unlike the olive/brown color described and written on the volunteer identification. (2) Chinook in the ocean are sometimes called “Blackmouth” and a black gum line used to be listed as an identifying feature in volunteer materials. However, while spawning in local streams they may have a very white gum line. (3) According to the professional surveys in the Kelsey Creek basin, there were a large number of chinook jacks in 2006. The smaller fish are easily misidentified as coho if run timing and other identifying features like spots are not closely observed. Coho are not usually observed in Bellevue until late October so reports of coho in early to mid October are more likely to have been misidentified.

